

CLAIMS

1. A multifunctional thermal installation, comprising:

a compressor having an inlet and an outlet;

a switch valve coupled to the outlet of the compressor;

an evaporator;

a condenser;

a water heater having a water inlet and a water outlet, the water inlet of the water heater being connected to an underground well; and

an expansion valve,

wherein the evaporator and the condenser each includes at least a group of heat exchangers, a first group of heat exchangers being disposed in the water heater and a second group of heat exchangers being disposed in a room, the second group of heat exchangers having fans associated therewith, wherein when the room is being cooled, a temperature of water in the water heater increases and, when the room is being heated, the temperature of water in the water heater decreases.
2. A multifunctional thermal installation as described in claim 1, wherein the switch valve coupled to the outlet of the compressor is connected to the second group of heat exchangers disposed in the room to form a heating circulation system.

3. A multifunctional thermal installation as described in claim 1, wherein the switch valve coupled to the outlet of the compressor is connected to the first group of heat exchangers disposed in the water heater to form a refrigeration circulation device.

4. A multifunctional thermal installation as described in claim 1, wherein the water heater is an enclosed water container, and the water outlet is a hot water outlet.

5. A multifunctional thermal installation as described in claim 1, wherein the compressor is disposed in the water heater.

6. A multifunctional thermal installation as described in claim 1, wherein the water inlet of the water heater is connected to the underground well by a pump.

7. A system for heating and cooling a room, the system comprising:

- a compressor having an inlet and an outlet;
- a switch valve coupled to the outlet of the compressor;
- an evaporator;
- a condenser;
- a water heater having a water inlet and a water outlet, the water inlet of the water heater being connected to an underground well; and
- an expansion valve,

wherein the evaporator and the condenser each includes at least a group of heat exchangers, a first group of heat exchangers being disposed in the water heater and a

second group of heat exchangers being disposed in a room, the second group of heat exchangers having fans associated therewith, wherein the system is configured to supply heat to the room when the switch valve is connected to the second group of heat exchangers disposed in the room, and the system is configured to extract heat from the room when the switch valve is connected to the first group of heat exchangers.

8. A system as recited in claim 7, wherein the compressor is disposed in the water heater.

9. A system as recited in claim 7, wherein the water inlet of the water heater is connected to the underground well by a pump.

10. A refrigeration and heating system, comprising:

- an evaporator including at least a group of heat exchangers;
- a condenser including at least a group of heat exchangers;
- a water heater having a water inlet and a water outlet, the water inlet of the water heater being connected to an underground well;
- a compressor having an inlet and an outlet, the compressor being disposed in the water heater;
- a switch valve coupled to the outlet of the compressor; and
- an expansion valve,

wherein a first group of heat exchangers is disposed in the water heater and a second group of heat exchangers is disposed in a room, the second group of heat exchangers being disposed in the room having associated fans therewith.

11. A system as recited in claim 10, wherein the switch valve coupled to the outlet of the compressor is connected to the second group of heat exchangers disposed in the room to form a heating circulation system.

12. A system as recited in claim 10, wherein the switch valve coupled to the outlet of the compressor is connected to the first group of heat exchangers disposed in the water heater to form a refrigeration circulation device.